

previous communications with a caller, and to log or file the current call in the history. The call is handled based upon a code stored with a unique call source number in a standard contacts management system.

[0011] In the following description, numerous specific details are provided, such as specific steps, ordering of steps, user interfaces, and the like, to provide a thorough understanding of, and enabling description for, embodiments of the invention. One skilled in the relevant art, however, will recognize that the invention can be practiced without one or more of the specific details, or with other steps, ordering of steps, interfaces and the like. In other instances, well-known structures or operations are not shown, or are not described in detail, to avoid obscuring aspects of the invention.

[0012] Referring to **Figure 1**, an example of a system 100 is shown in which an embodiment of the voice and data management system may operate. A user's telephone 101 is coupled to the public switched telephone network (PSTN) 102. Also connected to the PSTN 102 is a Telephony Service Provider System ("TSPS") 103, which may include a telephone switching system for receiving calls from the PSTN, and a voice response system for providing various telephony services such as call forwarding, voice messaging, etc., as described herein. A user profiles database 104 is coupled to the Telephony Services Provider System 102, and provides information about the users of the system, and the various services and features provisioned for each user. Also coupled to the Telephony Service provider System 103 is a messages database 105, which contains voice and fax messages for the users of the system.

[0013] A registration server 106 is coupled (e.g., via a LAN, WAN, etc.) to the TSPS 102. The registration server 106 may be coupled to a registration information database 107, a contact information database 108, and/or a calendar event database 109. Further information regarding the registration server is provided below.

[0014] The registration server 106 is also coupled to a user's computer 111 via a network such as the Internet 110. The user's computer 111 is running various

software components, including a communications, registration, and user-interface component 112, an interface component 113, and a contact management software component 114 (described below).

[0015] Under one embodiment, the TSPS 103 provides numerous call handling options to users, such as call screening services, the ability to redirect or re-route received calls to another phone location on the PSTN 102, etc. For example, if a caller associated with a caller telephone 115 (which is coupled to the PSTN 102) dials a telephone number associated with the user, that telephone number may be routed by the PSTN to the TSPS 103. (As described herein, such telephones may be any telecommunications devices, including devices configured to handle voice calls.) The TSPS 103 will then consult the user profile database 104 to determine the call handling method that should be used to handle that call. In one example of a call handling method, the call may be routed to a voice mail subsystem of TSPS 103, causing a message to be left in the messages database 105. In another example of a call handling method, the user profile database may contain a forwarding number for the user, and the TSPS 103 may reroute the incoming call through the telephony switch contained within 103, out through the PSTN 102 to the user's phone 101.

[0016] Note that the TSPS may also contain a voice response system that, depending on the call handling method selected, may provide various prompts associated with each call handling method. A user may have many pre-defined call handling methods stored in the user profiles database, and may select the call handling method to be used at any moment in time, by selecting for example a numeric code which is associated with that call handling method. Thus, the user may alter or change predefined call handling methods using any known user interface, such as via the user's telephone (landline or mobile phone) using DTMF or speech-recognition, via computer network such as a web interface coupling the user's computer 111 with the registration server 106, via a wireless portable palm top or wearable computer, via a wireless pager, via set-top box or other consumer premises equipment, or any other equipment.

[0017] Under one embodiment, the user computer 111 provides the user with access to real-time voice calls and to many voice call management functions, as described herein. The user computer 111 includes contact management software 114, such as an available, off-the-shelf contact management software package or system such as Outlook™ or Lotus Notes™ (although a custom configured contact management system can be partially or entirely employed). An interface component 113 is a software application that communicates with the contact management software 114, a communications, registration, and user interface component 112, and a registration server 106 (described below). The interface component 113 interfaces with the contact management software 114 using open application program interfaces (APIs) published by the manufacturer of the contact management software to permit other software components to interface and exchange data with the contact management software.

[0018] In one embodiment, the interface component 113 and the communications, registration, and user interface component 112 enhance the functionality of a telephony service provider system (TSPS) 103 and the registration server 106. Interface Component 113 provides an interface to the standard APIs presented by the Contact Management Software 114. For example, in an embodiment intended for Outlook™, interface component 113 may be a dynamic link library, or "DLL", which implements the Microsoft "IDTExtensibility2" library for Outlook™, which can be used to provide access to the Microsoft "Outlook™ Object Model". The Outlook™ Object Model provides methods and properties that allow a program to read and manipulate data in Outlook™, and to manipulate the Outlook™ user interface.

[0019] The communications, registration, and user interface component 112 may be implemented using a variety of methods. For example, under the embodiment that is further described with reference to Figures 3 - 13, component 112 is implemented as two applications, each performing a specific set of functions. First, a stand-alone Java application is used to implement the graphical user interface functions, and the functions of communicating with the registration